

REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-6 are presently pending in this application, Claims 2-5 having been withdrawn from further consideration by the Examiner, Claim 1 having been amended and Claim 6 having been newly added by the present amendment.

In the outstanding Office Action, Claim 1 was rejected under 35 U.S.C. §112, second paragraph, for being indefinite; and Claim 1 was rejected under 35 U.S.C. §102(b) as being anticipated by Tani et al. (U.S. Patent 5,294,460).

With regard to the rejection under 35 U.S.C. §112, second paragraph, Claim 1 has been amended to clarify the subject matter recited therein. Thus, Claim 1 is believed to be in compliance with the requirements of the statute. Furthermore, these amendments to Claim 1 are believed to find clear support in the claims, specification, and drawings as originally filed.<sup>1</sup>

Newly added Claim 6 is also believed to be supported by the original disclosure.<sup>2</sup> Hence, no new matter is believed to be added thereby.

Briefly recapitulating, Claim 1 as currently amended is directed to a silicon carbide-based, porous, heat-resistant structural material produced by a process including the steps of preparing a porous structural body including a material which is decomposed during firing in an evacuated or an inert atmosphere to form a carbonized composite having a framework which retains a shape of the porous structure body after the firing, a slurry containing a resin used as a carbon source and powdered silicon, and molten silicon, infiltrating the slurry into the porous structural body, carbonizing the porous structural body, performing reaction-

---

<sup>1</sup> See, for example, specification, page 10, line 19, to page 11, line 3.

<sup>2</sup> See, for example, *id.*, page 10, lines 8-18.

bonding so as to form silicon carbide having sufficient molten silicon wettability such that the molten silicon penetrates into the porous structural body and to simultaneously form open pores by the reaction-bonding which decreases a volume of the porous structural body, and infiltrating the molten silicon into the open pores of the porous structural body.

Tani et al. discloses a silicon carbide-carbon fiber composite material. Nevertheless, Tani et al. is not believed to teach the silicon carbide-based, porous, heat-resistant structural material produced by the process as recited in amended Claim 1. Instead, Tani et al. discloses a *composite material that requires carbon fibers* as reinforcing material, and this composite material is produced by dipping *carbon fibers* in the slurry including silicon and a thermosetting resin, producing carbon from the thermosetting resin and then forming silicon carbide on the *carbon fibers*.<sup>3</sup> The carbon fibers are *not* decomposed in the production process, but remain in the final product as reinforcing material.<sup>4</sup> Also, according to the examples in Tani et al., infiltration of the porous composite body with molten silicon is not performed, since the molten silicon would react with carbon fibers and decrease the mechanical strength of the body.<sup>5</sup> On the other hand, according to Claim 1, the base porous structure does not include carbon fibers, but includes a material which is *decomposed* during firing to form a carbonized composite. Since carbon fibers are not present, the infiltration with silicon molten can be performed to coat the structural body. Accordingly, unlike Tani et al., the material of Claim 1 includes the porous structural body having the open pores that have been infiltrated with the molten silicon. Therefore, the material recited in Claim 1 is believed to be clearly distinguishable from Tani et al.

---

<sup>3</sup> Tani et al., Abstract and Claim 1.

<sup>4</sup> Id., column 3, lines 10-16, and Fig. 1.

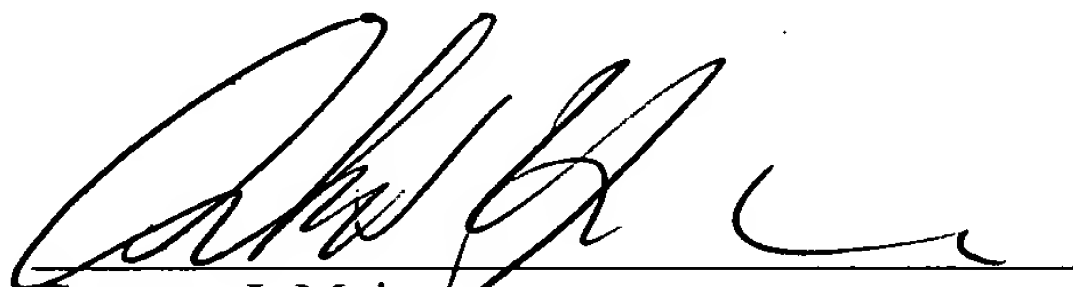
<sup>5</sup> Id., column 5, lines 6-16.

Likewise, independent Claim 6 is believed to include subject matter substantially similar to what is recited in Claim 1 to the extent discussed above. Thus, Claim 6 is also believed to be distinguishable from Tani et al.

In view of the amendments and discussions presented above, Applicant respectfully submits that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



Gregory J. Maier  
Attorney of Record  
Registration No. 25,599

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 08/03)

GJM/AY/YO:fm  
I:\ATTY\YO\21s\212933\AME MOD.DOC

Akihiro Yamazaki  
Registration No. 46,155